The New York Times

January 31, 2006
The Wounded

A New Kind of Care in a New Era of Casualties

By ERIK ECKHOLM

TAMPA, Fla. — Morning rounds at the Tampa veteran's hospital, and a phalanx of specialists stands at Joshua Cooley's door.

Inert in his bed, the 29-year-old Marine reservist is a survivor of an Iraq car bombing and a fearsome scramble of wounds: profound brain injury, arm and facial fractures, third-degree burns, tenacious infections of the central nervous system. Each doctor, six in all on a recent day, is here to monitor some aspect of his care.

As they cluster at the threshold, one gently closes the door — not to shield their patient from bad news, but to avoid over stimulating the nervous system of a man whose frontal lobe has been ripped by shrapnel. Not that the news right now is good: Corporal Cooley is spiking a fever, presumably because of his newest problem, blood clots in his left leg.

Tyler Hicks/The New York Times

The Tampa VAMC Polytrauma Rehabilitation Center in Tampa, Fla., is one of four special rehabilitation centers created to treat the most severely wounded soldiers. One of the soldiers, Sgt. Antwain Vaughn, was visited by his 1-month-old daughter, Liyah.

The doctors sort through a calculus of competing interests. Should they prescribe a blood thinner to dissolve the dangerous clots, even though that could cause more bleeding in the brain? Or should they just wait? At this point, the doctors decide, the clots pose the greater risk.

Thousands of miles from the battlefield, intricate medical choices have become routine here, at one of four special rehabilitation centers the government created last year to treat the war's most catastrophically wounded troops.

"These soldiers were kept alive," said Dr. Steven G. Scott, the Tampa center's director. "Now it's up to us to try and give them some meaningful life."

With their concentrated batteries of specialists and therapists, these centers are developing a new model of advanced care, a response to the distinctive medical conundrum of the Iraq war. With better battlefield care and protective gear, the military is saving more of the wounded, yet the insurgents' heavy reliance on car bombs and buried explosives means the survivors are more damaged — and damaged in more different ways — than ever before.

To describe the maimed survivors of this ugly new war, a graceless new word, Polytrauma, has entered the medical lexicon. Each soldier arriving at Tampa's Polytrauma Rehabilitation Center, inside the giant veteran's

hospital, brings a whole world of injury. The typical patient, Dr. Scott said, has head injuries, vision and hearing loss, nerve damage, multiple bone fractures, unhealed body wounds, infections and emotional or behavioral problems. Some have severed limbs or spinal cords.

"Two years ago we started seeing injured soldiers coming back of a different nature," recalled Dr. Scott, who is also the hospital's chief of physical medicine and rehabilitation. Then last spring, with a Congressional mandate, the Department of Veterans Affairs created the four new centers, formalizing changes that a few top veterans' hospitals were already starting to make.

After weeks or months of intensive care in military hospitals, more than 215 soldiers and a few more each week — still a tiny fraction of the roughly 16,000 soldiers who have been wounded in Iraq — have been sent here or to the other centers, inside V.A. hospitals in California, Minnesota and Virginia.

The surge in complex casualties, doctors found required major reorganizing, enabling them to focus extraordinary medical and therapeutic expertise on each patient and to offer counseling, housing and other aid to their often shell-shocked wives, children and parents.

"In the outside world you might have two or three consultants seeing a patient," said Dr. Andrew Koon, a specialist in internal medicine who was checking laboratory results on a portable computer during bedside rounds. "Here it's not unusual to have 10 specialists on board."

The multiple wounds have required medical balancing acts and unusual cooperation across departments. One quadriplegic patient was so weakened by recurring infections that doctors had to wait a year before removing shrapnel from his neck. In other cases, the risk of new infection has delayed treatment of the spasms that some paralyzed patients suffer, which can require an implanted pump to inject medicine into the spinal column.

Of some 90 soldiers with extreme injuries who were treated in Tampa over the last year only one has died, of a rare form of meningitis. The drama here is more excruciatingly drawn out: Over months and months of painstaking physical and psychological therapy, the patients and their families start learning the boundaries of their future lives.

Quiet Struggles

The medical challenges are often persistent and daunting, but the real focus of the new centers is rehabilitation. Even as doctors battle drug-resistant bacteria blown into wounds with Iraqi dirt, patients start relearning to talk and focus their thoughts, to walk and run or maneuver a wheelchair. Some go home in almost normal shape; for others, simply swallowing is a milestone.

To spend several recent days here is to witness a panorama of quiet struggles. A young man with brain and nerve damage slowly fits big round pegs into big round holes. Another beams after jogging a full minute for the first time since his injury, but cannot voice his mix of pride and impatience because shrapnel destroyed the language center in his brain.

A quadriplegic is lifted by a giant sling from his bed to a high-tech wheelchair, which he has learned to drive with a mouthpiece.

Progress on these wards can be measured in agonizing increments.

Corporal Cooley, a 6-foot 6-inch former deputy sheriff, arrived in Tampa on Sept. 29 after more than two months at the Bethesda Naval Hospital outside Washington. His doctors and relatives were encouraged when, after another couple of months, he wriggled his fingers and feet, and answered yes-no questions with blinks.

"They got him to make noises the other day," offered his wife, Christina. "He's doing really well." At "rehab rounds" one recent day, assorted therapists took up Corporal Cooley's case, reporting on small steps forward and compromises along the way.

The speech therapist said he was responding to questions with blinks about 30 percent of the time when she was alone with him, but less if distracted. She described her gingerly efforts to train him to swallow, using thin pudding, apple sauce and ice chips.

The respiratory therapist said his tracheotomy had to be changed to a larger, cuffed device that would allow them to expand his lower right lung.

The speech therapist groaned, "That will make it harder to swallow." They agreed that the lung had to take priority, but the speech therapist added, "Let's get rid of that cuffed trach as soon as possible."

Brain injuries — the signature wounds inflicted by the blast waves and flying shrapnel of explosives — are pervasive, and they tend to dictate the arc of care.

"It's really the brain injury that directs how we approach other impairments," Dr. Barbara Sigford, V.A.'s national director of physical medicine and rehabilitation and chief of the Minneapolis Polytrauma center, said in a telephone interview. "Many types of rehab rely on intact thinking, learning and memory skills."

Using advanced prosthetic limbs, for example, requires control of specific muscles; patients without that capacity must use simpler models. Blind people are normally taught to navigate using their memory of the environment; if memory is spotty, they must find other ways.

In the recreational therapy room in Tampa on a recent day, several men are being led through a round of Uno, a card game that involves matching numbers and colors. Some play well. Some fumble trying to pick up cards. One rocks in frustration at his inability to summon the word "blue."

Sgt. Antwain Vaughn, 31, an Army combat engineer who took a roadside blast in the face on Aug. 31, arrives late and in a wheelchair. A padded helmet covers a large indentation where his shattered skull will receive a metal plate.

Sergeant Vaughn came to Tampa after two months on a ventilator and feeding tube. In addition to brain damage, facial fractures, pulmonary problems, blood clots and infections, he lost an eye and has trouble with complex tasks, something the card game could help.

Here he has learned to swallow and eat and in daily therapy, when he is feeling up to it, he is working to reclaim a life. But this time, he will not join the game. "My head's hurting a lot," he quietly tells the group.

Head injuries have also left some soldiers in a peculiar psychological box. Before Iraq, most head injuries at the Tampa hospital involved car accidents, said Dr. Rodney D. Vanderploeg, the chief of neuropsychology. Though it may seem counterintuitive, soldiers with penetrating brain injuries, in which a fragment crashed through their skulls, are far more likely to remember the attack and its bloody aftermath, perhaps including the deaths of friends, he said.

These memories often cause great psychological stress. But psychotherapy becomes especially difficult if injury has impaired a patient's insight and understanding.

Making Progress

In the hallways, the banter tends to be upbeat, as perhaps it needs to be for patients and staff. A patient shows off his stair-climbing wheelchair. Others compare the merits of prosthetic leg models. Nearly every patient vows, not always realistically, that he will get back on his feet and more.

"The way I see it, if I get able to walk a little bit, then eventually I'm going to walk a lot," said Specialist Charles Mays, 31, who was left with multiple fractures and partial paralysis of his legs after being blasted out of his Humvee by a vertically buried rocket south of Baghdad.

Sometimes the hallways bring success stories like Specialist Nicholas Boutin, who was slowly walking on his own to speech therapy in a hockey helmet, apparently not at all self-conscious about the red pit where an artificial eye will be implanted or about the large dent where a piece of skull will be replaced.

Specialist Boutin, 21, had arrived in Tampa just five weeks before, mute and hardly able to swallow, his right arm and leg almost useless. During a midnight patrol in a village near Samarra, an insurgent dropped a grenade into his Bradley fighting vehicle. Fragments sprayed into his face and the left side of his brain, leaving him with Broca's aphasia — able to comprehend but not to speak.

He weathered fungal infections, facial pain where nerves were damaged and the destruction of his pituitary gland and a maxillary sinus, the kind of internal wound that can torment a person for life.

But now, after hard hours each day in therapy, he can jog briefly and write messages with his right hand. As speech therapists coax the right side of his brain to take over lost functions from the left, he has begun to make one-word responses and spontaneously utter a few words at a time. Soon he will head home to Georgia for continued therapy.

"Yes," he uttered instantly when asked if he felt he was progressing. Determination gleamed from his remaining eye.

Behind closed doors, though, bravado sometimes gives way to depression, explosive anger, survivors' guilt. Some patients sit quietly with glum faces or obsess endlessly about their buddies and time in Iraq.

As much as the nurses are often buoyed by their patients' progress, they say the relentless intensity of the work can sometimes bring them to tears. They spend as much time interacting with stressed-out relatives as with the patients.

"Relatives take out their frustrations on the nurses," said Laureen G. Doloresco, assistant nursing chief. "It's also hard on the nurses because of the youth of the patients. Many of them have sons the same age."

Support Systems

At the bedsides of many of these young men are their equally young wives, whose lives have also been wrenched onto unexpected paths.

Before he was sent to Iraq last Jan. 1, Corporal Cooley and his wife were partners on the vice/narcotics squad of a sheriff's department in central Florida. They married just before his deployment.

Soon after the car bombing on July 5, she and her husband's parents were summoned to the American military hospital in Landstuhl, Germany, and warned to expect the worst.

After the car bomb detonated, near the town of Hit, Corporal Cooley had been pulled from his burning amtrack, an armored vehicle, unconscious and with a gaping hole in his head. The medics had at first refused to load him onto the evacuation helicopter, Christina Cooley later learned. They changed their minds when they heard a moan.

Ms. Cooley recalled telling doctors that they were showing her the wrong patient, that this bloated figure was not her husband. She was convinced only after she saw his tattoos.

She also saw, though, that he was breathing on his own. Days later, he was flown to the Bethesda Naval Hospital, and for two months, his wife and the in-laws she still barely knew shared a hotel room and spent their days around Corporal Cooley's bed in intensive care.

Here in Tampa, despite continued medical setbacks like the blood clots, attention was turning to his potential for physical and mental recovery.

So far, he had been put in a chair for a few hours a day and strapped into a "tilt board" at a 45-degree angle for 10 minutes at a time, to forestall the drops in blood pressure that occur when long-prone patients raise up.

His wife finds hope where she can.

Corporal Cooley often stares vacantly, she said, and "you don't know if he's there." But one day when she asked him, "Who's my hero?" he pointed a finger toward himself.

Their home county, outside Tampa, has raised money that she plans to use on an accessible house.

"I hope he'll walk through the door of that house," she said. "If not, I'll take him as a vegetable. I'll take care of him the rest of my life. I love that man to death."

Overhearing her, Dr. Scott, the center's director, marshaled his characteristic optimism. "He can already move both legs," he said. "It's possible he can be rehabbed to walk. How far he'll go we just don't know."

The Polytrauma centers themselves remain works in progress, sharing lessons with one another and with the major military hospitals by videophone, and pushing scientific inquiry into the myriad, often invisible effects of explosive blasts.

The Department of Veterans Affairs says it has not calculated the cost of establishing the centers, bolstering their staffs and treating patients so long and intensively. The Tampa hospital's director, Forest Farley Jr., said that here alone, it was "several millions of dollars."

Though the average stay in Polytrauma centers is 40 days, many patients remain for months and some for more than a year. In the end, a few must go to nursing homes, but most go home, where they receive continued care at less-specialized veteran’s hospitals, with oversight from the centers. Some require round-the-clock home aides and therapists and costly equipment, paid for by the government on top of monthly disability payments. Even so, wives or parents often must give up their jobs.

For the worst off, the ongoing annual costs — largely hidden costs of this war — can easily be several hundred thousand dollars or more.

"We expect to follow these patients for the rest of their lives," Dr. Scott said. "But I have a great deal of concern about our country's long-term commitment to these individuals. Will the resources be there over time?"